



SC-1080 SINGLE-CAPSTAN TAPE TRANSPORT AND SYSTEM



FEATURES

- Any bidirectional tape speed up to 150 ips
- Fully automatic tape loading — stops on load point
- Retractable Read/Write Head
- Unrestricted programming capacity
- IBM 7- and 9-channel (IBM 360 and ASCII) capability
- Speed tolerance $\pm 1\%$
- Information density to 800 bpi, NRZ-1; 1600 bpi, phase modulated recording
- Revolutionary new single-capstan tape drive
- Data reliability — only surface in contact with oxide is read/write head
- No mechanical adjustments required
- Photoelectric tape position sensors
- All solid-state (silicon) servo controls
- Long life . . . minimum servicing

GENERAL DESCRIPTION

The Potter Model SC-1080 represents a new design in tape transports. This tape system is the industry's simplest, high performance, single capstan tape transport.

The new Potter SC-1080 is a single-capstan digital tape transport capable of bidirectional tape speed to 150 ips with no program restrictions. The unit is completely compatible with IBM Systems such as the 729 and 360/2400 Series at all packing densities.

The SC-1080 is IBM 7- or 9-Channel compatible. Other $\frac{1}{2}$ " tape formats, including ASCII 9-channel are available with packing densities to 800 bpi, NRZ-1; and 1600 bpi phase modulated recording.

The SC-1080 single capstan tape transport is designed for use with the highest performance computer systems featuring operator convenience, high transfer rate and high-speed rewind. The basic simplicity of the SC-1080 transport assures maximum data reliability and system up-time.

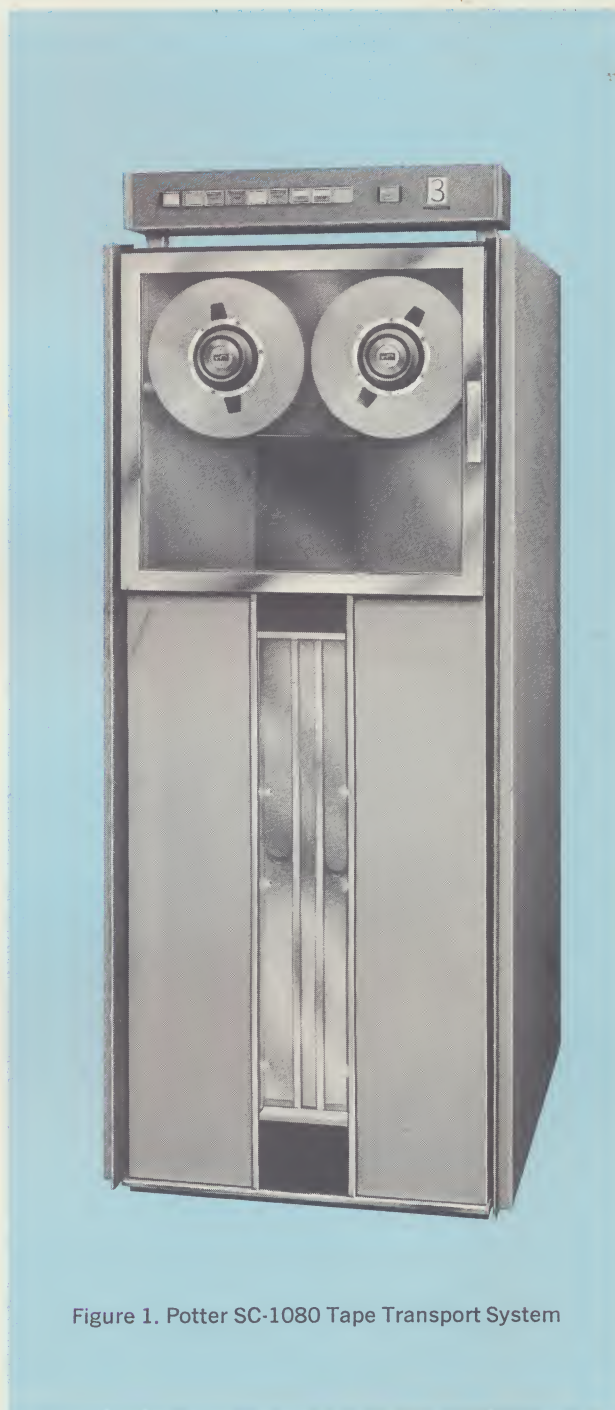


Figure 1. Potter SC-1080 Tape Transport System

Newly Designed Tape Drive is Ultimate in Simplicity

A revolutionary tape drive design utilizes a single capstan to pass the tape across the read/write head. Tape is threaded from the supply reel, over the read/write head to the take-up reel on the left side of the transport. The oxide touches no surface except the read/write head, and the Mylar™ side of the tape is guided gently to eliminate wear particles, thus greatly increasing tape life and data reliability. During rewind the read/write head is retracted to a neutral position resulting in longer head / tape life.

Control of the tape path is maintained by a precision edge guidance system. Data may be transferred to or from the tape transport at standard bit densities of 200, 556 and 800 bpi or at any other transfer rate up to 240 kc at 150 ips. (For special system applications consult the factory.) Tape tension is uniform throughout the entire reel, resulting in a smooth, even pack.

LOW INERTIA TAPE DRIVE

A low inertia drive provides rapid linear acceleration and deceleration while maintaining control of the tape by the capstan at all times. There are no pinch

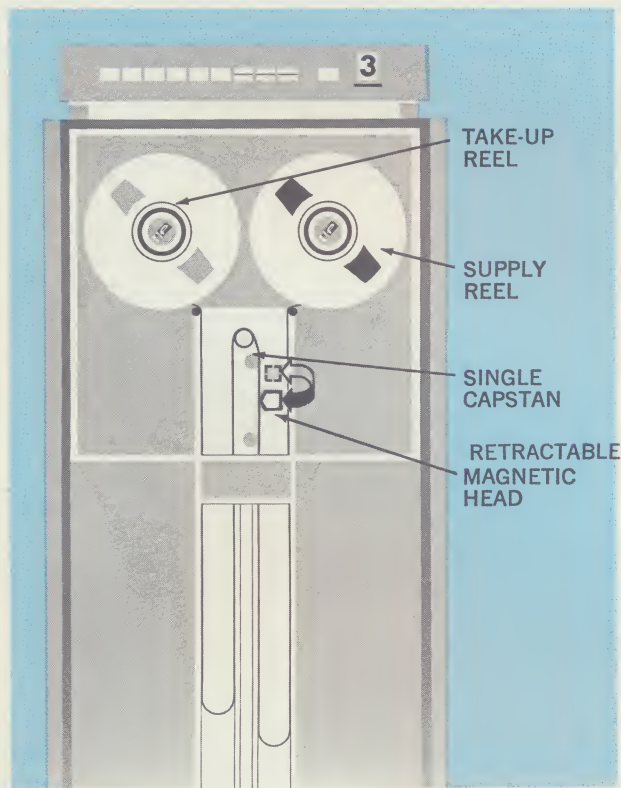


Figure 2. New Single-Capstan Tape Drive System and Direct Tape Path is Ultimate in Design Simplicity

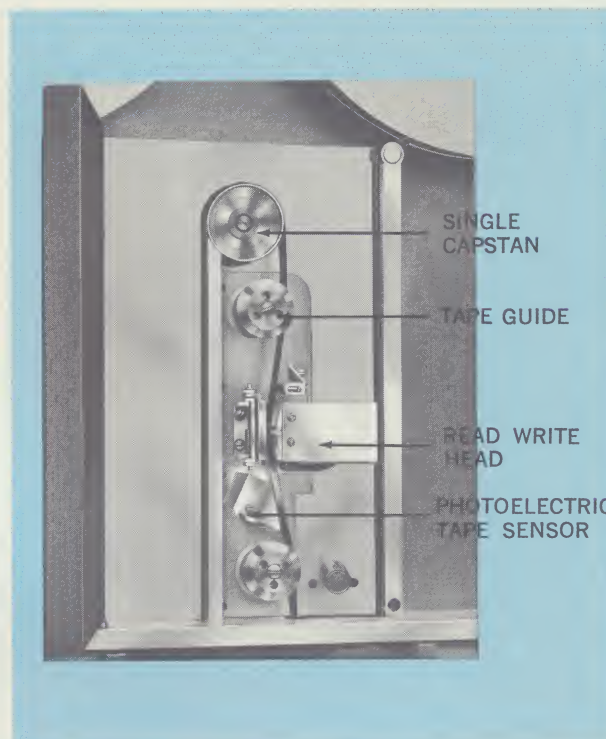


Figure 3. Precision Tape Guidance System

rollers, vacuum switches, guide rollers, air guides or tension arms to restrict performance. Complicated mechanical adjustments are eliminated.

The tape drive is provided by passing the tape 160° around a metal capstan coated with a resilient material. Sufficient tension is applied to the tape by the vacuum columns to preclude slippage of the capstan with respect to the tape.

The capstan is coupled to three magnetic particle clutches. One clutch has a locked stator and serves as a brake. The second clutch has a rotating stator belt driven by a synchronous motor. The third clutch is driven by the same motor in the opposite direction and is used for reverse tape drive. The new clutch assembly provides superior starts and reversals, long motor life and maintenance-free operation. (Patent Applied for)

The tape position in the vacuum columns is constantly surveyed by two closed loop servo systems, one for the left reel and column, one for the right reel and column. Position detection is performed by photoelectric cells connected in turn through a signal interpreter to the servo amplifier. The servo motor is driven to pay out tape into, or take up tape from the vacuum column as required to follow the capstan movement. The servo motor utilizes a new dynamic braking system which eliminates mechanical shoes and adjustments forever. The new system is fail-safe even if AC power fails during high speed rewind, providing maximum tape protection

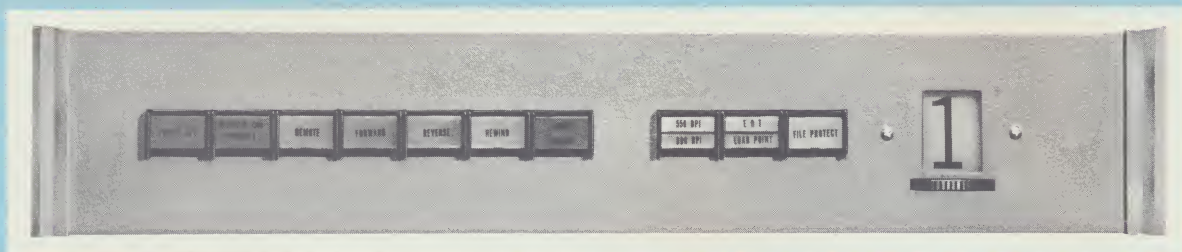


Figure 4. Operator Control Panel

OPERATOR CONTROLS

An operator control panel can be provided with the transport system for local operation and indication. Indicators show the status of the system under local conditions. A remote control connector accepts input control signals and provides output status signals to and from the computer. Tape command interlocks are provided to protect the system from erroneous command sequences.

AUTOMATIC TAPE LOADING

Tape loading is easier and faster than ever before with Potter's new single-capstan transports. All that is necessary is to first mount the supply reel on the QUICK-LOCK™ hub assembly. Tape is then threaded from the supply reel, and then to the take-up

reel. From this point loading is accomplished fully automatically at a touch of the LOAD button. Tape is pulled into the vacuum tanks and advances to the load point. The transport will then assume a standby state and be ready for the first computer command. Threading around rollers, multiple capstans, and guides is completely eliminated.

DRIVE ELECTRONICS

Drive electronics are all solid-state (silicon on low level stages).

All circuits are transistorized and mounted on removable printed circuit modules. Test points are provided where required for routine maintenance or service checks. The drive electronics includes all power supplies required for transport operation.

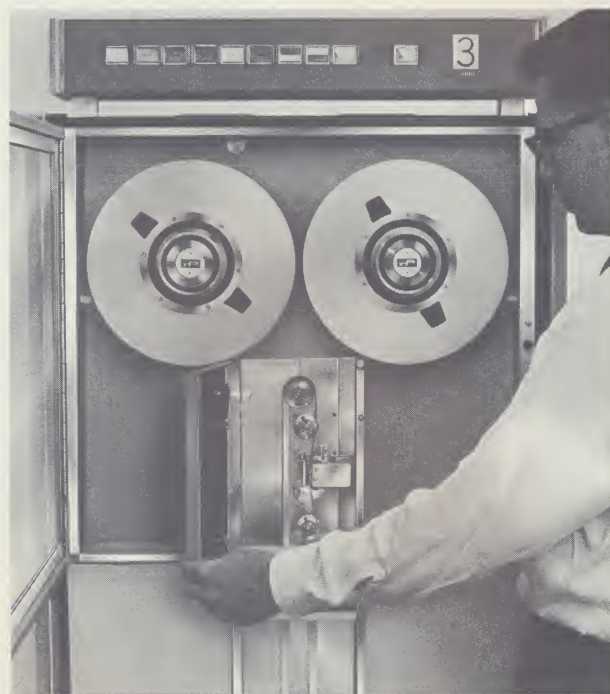


Figure 5. Automatic Tape Loading

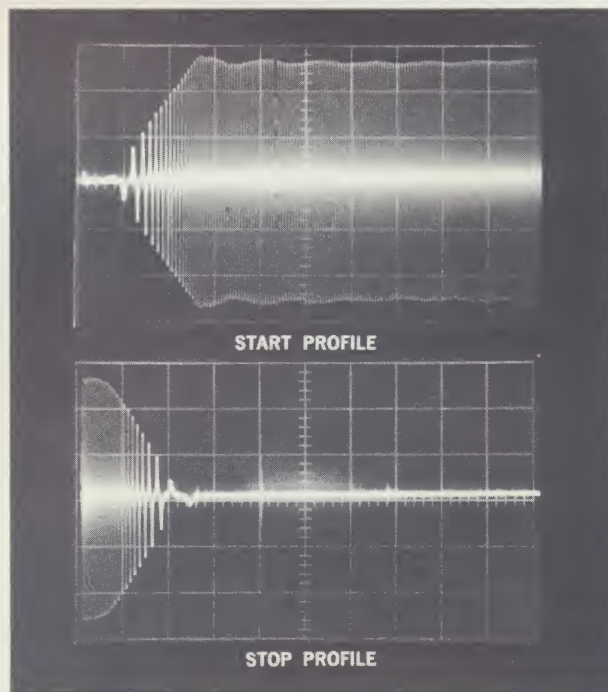


Figure 6. Start/Stop Profiles at 150 ips

RELIABILITY AND MAINTENANCE

Reliability of operation is a prime requisite of computer peripheral equipment. The SC-1080 has been planned with this consideration receiving major attention. The mechanical design incorporates a minimum of moving parts with all electronic components derated to conservative levels. There are no mechanical adjustments, and only three electrical adjustments necessary in the operation of the SC-1080 transport.

EQUIPMENT

The basic Potter SC-1080 transport consists of the following subassemblies:

- The tape transport assembly including all tape drive components
- Beginning-of-tape (BOT) sensor, photoreflective IBM-type, plus amplifier and mating connectors
- End-of-tape (EOT) sensor, photoreflective IBM-type, plus amplifier
- Transport drive electronics
- IBM-type QUICK-LOCK™ reel hubs
- One (1) empty IBM-type plastic reel take up reel
- Retractable Read/Write Head
- Optional Accessories —
 - Operator Control Panel without address select

Operator Control Panel with address select switch (seven position)

Master Reel Write Lockout, (File Protect), IBM-type Switch

Fixed Precision Metal Tape-up Reel

Dual gap write-check read head assembly for 7-channel (IBM 729) operation: 0.048 inch write and 0.030 inch read tracks on 0.070 inch centers. Gap spacing 0.300 inch.

Dual gap write-check read head assembly as above, but for 9-channel (IBM 2400 or ASCII) operation: 0.044 inch write and 0.040 inch read tracks on 0.055 inch centers. Gap spacing: 0.150 inch.

Erase Head

50 cycle and/or 230 VAC Input Power

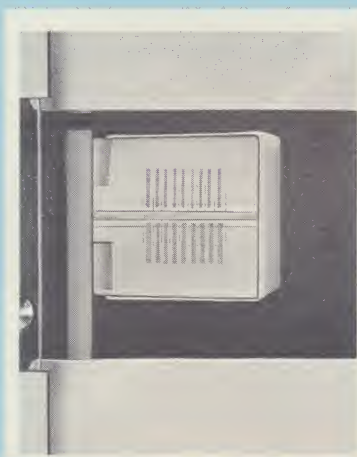
Special Paint (paint supplied by customer)

Cabinet

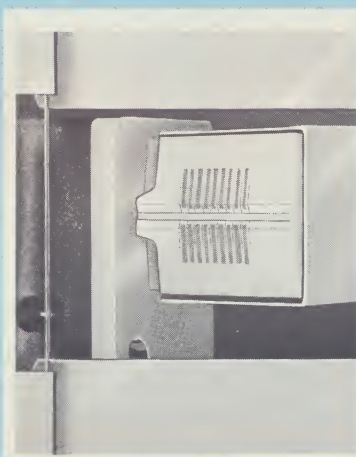
All Potter equipment includes mating connectors for all interface points.

In the single capstan series, units are available with tape speeds to 150 ips at all packing densities with unrestricted programming.

For further information, write, wire or call General Sales Manager, Potter Instrument Company, Inc., 151 Sunnyside Boulevard, Plainview, New York, telephone (516) OVerbrook 1-3200, TWX 516 433 9320.



POSITION 1 for vacuum column loading



POSITION 2 for non-contact rewind



POSITION 3 for tape contact for reading and writing

NEW RETRACTABLE HEAD PROVIDES FOR LONGER LIFE

The read/write head assembly is mounted on a 3-position hinged plate: retracted to permit vacuum column loading (position 1), out of contact for rewind (position 2), and in contact with tape for reading and writing (position 3). This

action is controlled by a motor separate from the tape drive train. Special construction methods have been employed to insure repeated positioning accuracy.

ACCESSORIES

Dual-Gap Read/Write Head

The dual-gap read/write head assembly uses an all-metal flush surface housing for longer life and greater reliability. The assembly is non-adjustable and can be replaced by normally skilled maintenance personnel. The read/write head assembly is designed for operation at transfer rates in excess of 240 kc.

A complete selection of magnetic heads is available, including heads for IBM 7- or 9-channel format. Heads are all-metal, precision fabricated for maximum tape life and minimum interchannel time displacement.

Reel and Hub Assemblies

IBM-compatible hubs and one IBM-compatible tape reel are provided. Potter's IBM-compatible QUICK-LOCK™ hub assembly, a significant development in tape transport technology, is provided as standard equipment with the SC-1080. Also, a fixed precision metal take-up reel with matching hub is available.

EOT/BOT Sensing

A dual-channel photoelectric sensor is provided immediately adjacent to the read/write head assembly to detect the presence of standard IBM photoreflexive strips attached to the Mylar™ side of the tape for indicating the load point and end-of-tape positions. A two-channel amplifier with logic level outputs is provided.

Write Lockout

A non-contact write lockout, or file protect, switch is mounted at the supply reel hub. A single form C contact is brought to the transport interface connector. This switch may be wired to Potter MA-series amplifiers to provide automatic write inhibit.

READ-WRITE ELECTRONICS

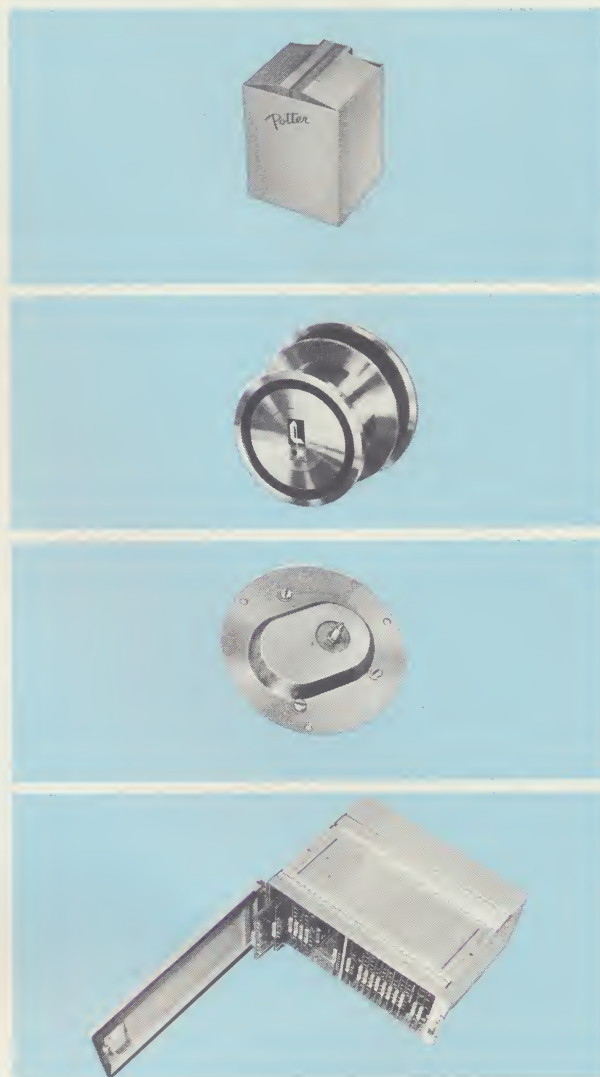
Standard read-write amplifiers are available to accommodate packing densities up to 800 bpi and data transfer rates up to 240 kc.

Each read-write electronics assembly contains:

- up to 9 read-write amplifier channels
- clock generator
- write inhibit electrical switching
- erase head control
- head compensation for Read/Write (as required)
- power supply

® QUICK-LOCK is a trademark of Potter Instrument Company, Inc.

™ Mylar is a trademark of E. I. duPont de Nemours Company, Inc.



Cabinet

The newly styled modular cabinet with tubular steel frame is equipped with rear service access doors, less side panels. The cabinet includes A.C. power control panel, with hubbel twist lock 3-wire receptacle with mate; cabinet fan with filter. Side panels (specify right or left when facing transport) are also provided. The cabinet will accommodate all transport components, drive electronics, power supply and accessories that comprise the system, as well as read/write electronics.

Standard Colors:

Cabinet — ARMORHIDE Light Grey Textured #U-621

Transport Panel and Operator Control Panel — ARMORHIDE Medium Grey Textured #U-242

Decorative Trim — ARMORHIDE Ocean Blue #U-11695